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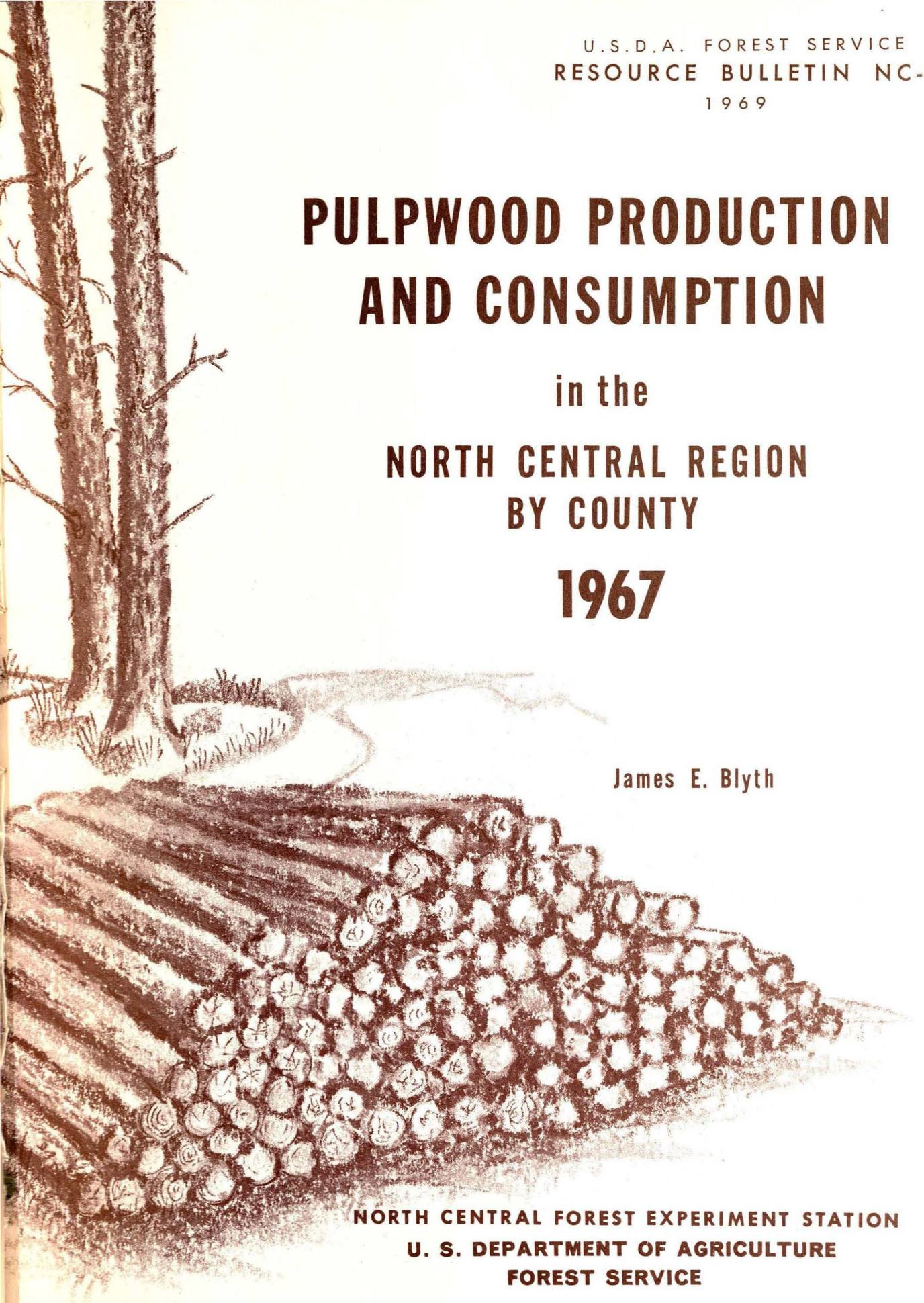
1969

PULPWOOD PRODUCTION AND CONSUMPTION

in the

NORTH CENTRAL REGION BY COUNTY

1967



James E. Blyth

NORTH CENTRAL FOREST EXPERIMENT STATION
U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

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NOTE: The author is a Market Analyst on the staff of the North Central Forest Experiment Station. He is headquartered at the Station's main office in St. Paul, Minn., which is maintained in cooperation with the University of Minnesota.

NORTH CENTRAL FOREST EXPERIMENT STATION
D. B. King, Director
U.S. DEPARTMENT OF AGRICULTURE — FOREST SERVICE
Folwell Avenue
St. Paul, Minnesota 55101

Pulpwood Production and Consumption in the North Central Region, by County, 1967

James E. Blyth

This is the ninth annual report on the pulpwood harvest in Lake States Counties and the eighth annual report on the Central States harvest. The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States — more detailed data published on pulpwood production and consumption in the Central States would reveal the operations of individual mills.

The pulpmills using North Central States timber in 1967 reported their pulpwood receipts by state and county. Their cooperation is gratefully acknowledged. Thanks are due also to Ray Pfeifer, Forest Survey Coordinator, Michigan Department of Conservation, for collecting data on the Michigan pulpmills.

LAKE STATES

Pulpwood production[1] and consumption declined from 1966, but were the second highest ever recorded. Partially responsible for the declines were the closing of several Lake States pulpmills, high pulpwood inventories at Lake States mills in early 1967, a leveling off of national paper and board inventories after a large buildup in 1966, and a drop in national per capita consumption of paper and board from 536 pounds in 1966 to 512 pounds in 1967.

Production Drops 7 Percent

Pulpwood production was 3,965,000 cords in 1967, down 315,000 cords from 1966. Only 36,000 cords were shipped to mills outside the Lake States. Ninety-five percent of the total production was roundwood; the balance was residue from local wood-using plants. The use of Lake States mill residue for pulping was up 40,000 cords from 1966; seven-tenths of this residue was delivered to pulpmills as chips.

Aspen constituted 53 percent of the roundwood harvest, although 222,000 cords less were cut than in 1966. Other reductions in cutting from the previous year included 152,000 cords of pine and 65,000 cords of hemlock. On the other hand, the spruce harvest increased by 42,000 cords and the tamarack harvest by 33,000.

Only 23 percent of the 1967 roundwood harvest was peeled before delivery, compared to 27 percent in 1966. More than 90 percent of the peeled wood was aspen. Wisconsin loggers peeled slightly more than half of their 1967 aspen pulpwood, whereas Michigan loggers peeled two-fifths, and Minnesota loggers about one-fourth (fig. 1). Peeled aspen was common in all districts of Wisconsin, but varied greatly as a percent of total cut by district in Minnesota and Michigan.

[1] *"Production" is "the harvest of pulpwood from timber lands in a specified area and received at mills during 1967," whereas "consumption" is "the volume of wood received by mills in a specified area regardless of the geographic source."*

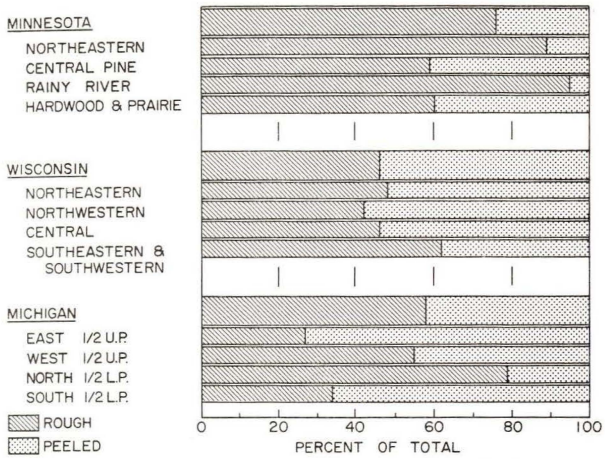


FIGURE 1. — Percent of rough and peeled aspen production of roundwood, by State and Forest Survey District, 1967.

Consumption Down More Than 300,0000 Cords

Forty-six Lake States mills processed nearly 4½ million cords of pulpwood in 1967, off 6 percent from 1966. Aspen, pine, and spruce accounted for 78 percent of all roundwood consumed. All but seven mills used aspen (table 1).

Table 1. — Number of plants using the different species of wood for pulping in 1967

Species and kind of material	Lake States	Minn.	Wis.	Mich.
Aspen	39	9	22	8
Balsam fir	20	5	11	4
Birch	12	2	8	2
Hemlock	6	-	5	1
Pine	12	3	5	4
Spruce	23	5	14	4
Tamarack	6	1	5	-
Misc. hardwoods	15	2	8	5
Wood chips	11	3	5	3
Slabwood and other residue	6	1	4	1
Total plants	46	9	27	10

Lake States pulpmills are using an increasing volume of mill residues, consuming 80,000 cords more in 1967 than in 1966. Nearly half of the increase was softwood residues from western states.

Total pulpwood imports increased slightly to 531,000 cords (table 2). Major imports were 105,000 cords of pine roundwood and 124,000 cords of softwood chips from western states, and 214,000 cords of spruce roundwood from Canada.

Table 2. — Pulpwood exports and imports for the Lake States, 1967
(Thousand standard cords, unpeeled)

Species	Exports	Imports	Net exports or (imports)
Aspen	-	13	(13)
Balsam fir	*	20	(20)
Pine	-	143	(143)
Spruce	21	219	(198)
Mixed hardwoods	4	8	(4)
Residues, softwood	5	124	(119)
Residues, hardwood	6	4	2
Total	36	531	(495)

* Less than 500 cords

Wisconsin Mill Procurement Shifts Westward

Wisconsin mills bucked the regional trend and used slightly more wood than in 1966. They increased their purchases from Minnesota by 105,000 cords and from the western states by 48,000 cords, but reduced their in-state purchases by 113,000 cords. The volume of wood obtained from Michigan remained about the same as in 1966. For the first time, Wisconsin procured more than 200,000 cords from western states, primarily pine roundwood and softwood chips. With few pulpmills located in the Rocky Mountain area, loggers in that region have been eager to supply Wisconsin mills.

Several Mills Close, Slightly Reducing Total Active Mill Capacity

Six pulpmills, with a collective daily capacity of 485 tons, closed during 1967 in the Lake States. However, because other mills expanded, the net daily capacity loss was only 185 tons. Also, some idled mills will be replaced with more modern and higher capacity equipment. Thus, the decline in capacity is expected to be temporary. Total regional capacity is still close to 10,000 tons per day (table 3).

Table 3. — Active woodpulp mills in the Lake States, by location, type of pulp produced, and capacity, 1967

Company	Location	Mill capacity in tons per 24 hours[1/]				
		Total	Sulfite	Sulfate	Groundwood and other mechanical	Semi-chemical
Minnesota:						
Blandin Paper Co.	Grand Rapids	205	--	--	205	--
Hennepin Paper Co.	Little Falls	65	--	--	65	--
Boise Cascade Corp.	International Falls.	755	180	125	450	--
Northwest Paper Co., The	Cloquet	420	115	305	--	--
Nu-Ply Corp.	Bemidji	75	--	--	75	--
St. Regis Paper Co.	Sartell	125	--	--	125	--
Superwood Corp.	Duluth	240	--	--	240	--
Hoerner Waldorf Corp.	St. Paul	275	--	--	--	275
Conwed Corp.	Cloquet	350	--	--	350	--
Total	9 plants	2,510	295	430	1,510	275
Wisconsin:						
American Can Co.	Green Bay	235	145	--	90	--
American Can Co.	Rothschild	180	180	--	--	--
Badger Paper Mills, Inc.	Peshtigo	90	90	--	--	--
Combined Paper Mills, Inc.	Combined Locks	175	--	--	175	--
Consolidated Papers, Inc.	Appleton	155	155	--	--	--
Consolidated Papers, Inc.	Stevens Point	100	--	--	100	--
Consolidated Papers, Inc.	Wisconsin Rapids	515	215	--	300	--
Green Bay Packaging, Inc.	Green Bay	250	--	--	--	250
Kansas City Star Co.	Park Falls	115	115	--	--	--
Kimberly-Clark Corp.	Kimberly	240	140	--	100	--
Kimberly-Clark Corp.	Niagara	150	--	--	150	--
Mosinee Paper Mills Co.	Mosinee	200	--	200	--	--
Nekoosa-Edwards Paper Co.	Nekoosa	310	--	310	--	--
Nekoosa-Edwards Paper Co.	Port Edwards	200	200	--	--	--
Owens-Illinois	Tomahawk	525	--	--	--	525
Procter & Gamble Co.	Green Bay	2/	2/	--	2/	--
Procter & Gamble Co.	Little Rapids	2/	--	--	2/	--
Scott Paper Co.	Marinette	50	50	--	--	--
Scott Paper Co.	Oconto Falls	110	110	--	--	--
St. Regis Paper Co.	Rhinelander	110	110	--	--	--
St. Regis Paper Co.	Cornell	50	--	--	50	--
Sterling Pulp & Paper Co.	Eau Claire	75	--	--	75	--
Superior Fiber Products Co.	Superior	180	--	--	180	--
Thilmany Pulp & Paper Co.	Kaukauna	360	--	360	--	--
Tomahawk Pulp Co., Inc.	Tomahawk	50	--	--	50	--
Wausau Paper Mills Co.	Brokaw	145	145	--	--	--
Wisconsin Wood Products, Inc.	Phillips	50	--	--	50	--
Total	27 plants	4,620	1,655	870	1,320	775
Michigan:						
Abitibi Corp.	Alpena	300	--	--	300	--
Celotex Corp.	L'Anse	270	--	--	270	--
Hoerner Waldorf Corp.	Ontonagon	250	--	--	--	250
Manistique Pulp & Paper Co.	Manistique	90	--	--	90	--
Mead Corp., The	Groos	100	--	--	100	--
Menasha Corp.	Otsego	225	--	--	--	225
Packaging Corp. of America	Filer City	565	--	165	--	400
Scott Paper Co.	Detroit	170	170	--	--	--
Scott Paper Co.	Menominee	20	--	--	20	--
Warren Co., S.D.	Muskegon	225	--	225	--	--
Total	10 plants	2,215	170	390	780	875
All States	46 plants	9,345	2,120	1,690	3,610	1,925

1/ Lockwoods Directory of the Paper and Allied Industries-1968, and 1968 Directory of the Forest Products Industry.
2/ Capacity not available.

Nationally Oriented Mill Ownership Increasing

Mergers and purchases of Lake States pulpmills by companies owning mills in other regions have been proceeding for several years. Some Lake States firms have also built plants in other regions. As a result, the management at many Lake States mills is more nationally oriented. National pulp and paper firms tend to consider larger geographic areas for expansion than regional firms, not only in the United States, but in Canada or overseas. They usually have greater product mixes than regional companies, and are more likely to merge or expand their operations beyond the wood-using field. They are also probably more likely to close marginal mills to seek larger rates of return on investments elsewhere. In other words, national organizations base their decisions to build, expand, or close Lake States mills upon additional factors and a different outlook than regional companies. Industrial development groups, forest owners, forest managers, and research foresters can be more effective in attracting new pulpmills (and encouraging expansion of existing mills) if they recognize these differences.

Review of Pulpwood Production by States, 1967

Of the 1967 harvest, Wisconsin contributed 36 percent, Michigan 34 percent, and Minnesota 30 percent.

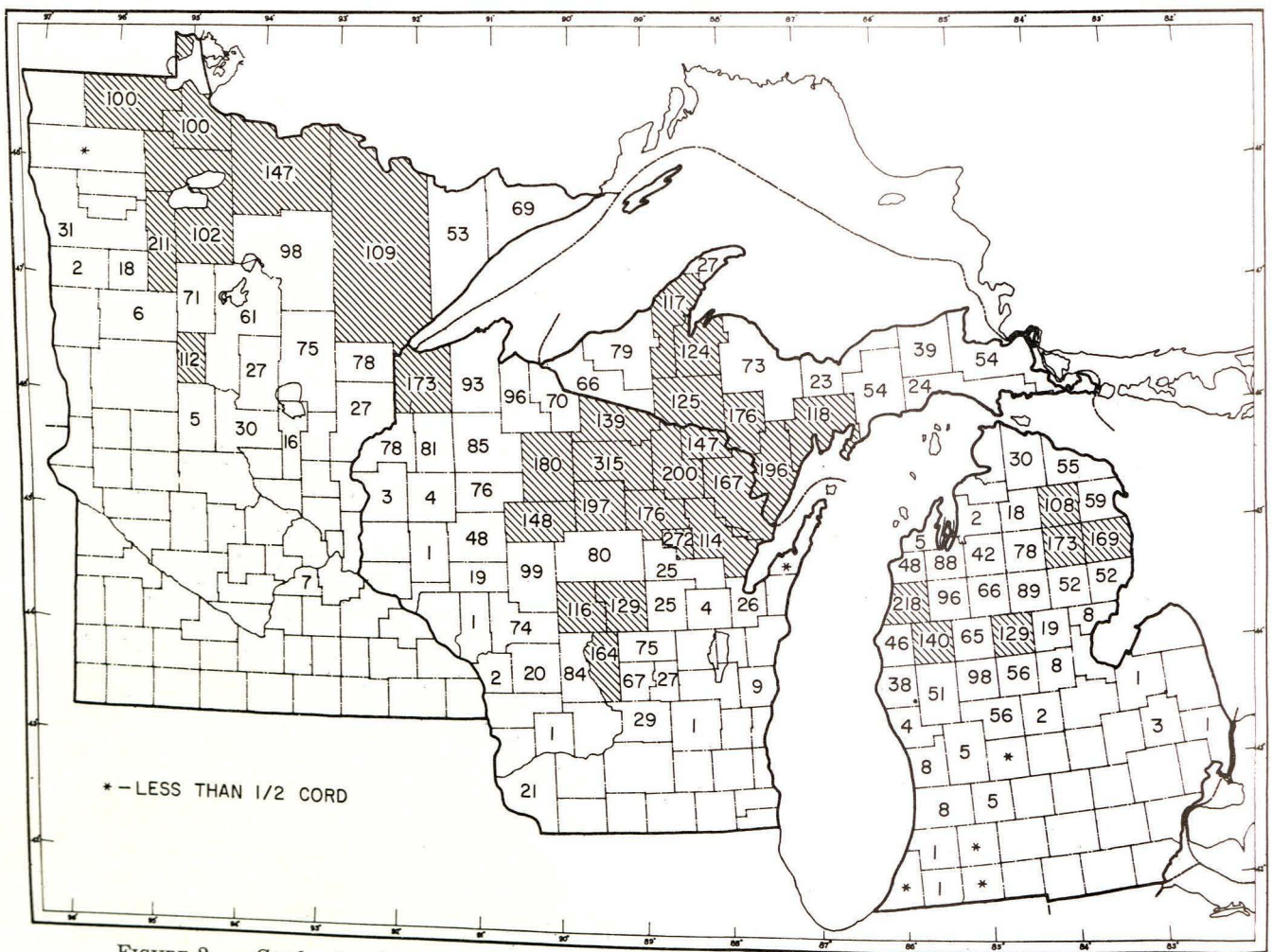


FIGURE 2. — Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1967. Crosshatching shows counties that supplied 100 or more cords of pulpwood per 1,000 acres of stocked commercial forest land.

The distribution of the pulpwood harvest is shown in two different ways: first, the amount of pulpwood cut relative to commercial forest area, and second, the amount of pulpwood cut relative to the merchantable volume in major pulpwood species. The pulpwood cut per 1,000 acres of stocked commercial forest land was greatest in central and northeast Wisconsin, western upper Michigan and scattered counties in northern Lower Michigan, and in northern Minnesota (fig. 2). The harvest per 1,000 cords of merchantable volume in principal pulpwood species was greatest in central Wisconsin and least in southern Wisconsin (fig. 3).

Wisconsin regains pulpwood harvest lead. — Although its production dropped 119,000 cords from 1966, Wisconsin took the lead in pulpwood cut, after 3 years in second place. Only 2 percent of the harvest was shipped out-of-state. All areas of the state shared in the decline, but the greatest volume drop was in the northeast. Top-producing counties were Oneida, Forest, and Marinette with 151,000, 101,000, and 90,000 cords, respectively.

Michigan cut dwindles by 226,000 cords. —Nearly all of the reduced pulpwood cutting in Michigan can be accounted for by lagging in-state consumption. Shipments to Wisconsin remained high and nearly equaled the cut volume remaining in Michigan. All areas of Michigan shared in the decline, but the major decrease was 137,000 cords in northern Lower Michigan. Menominee, Iron, and Marquette

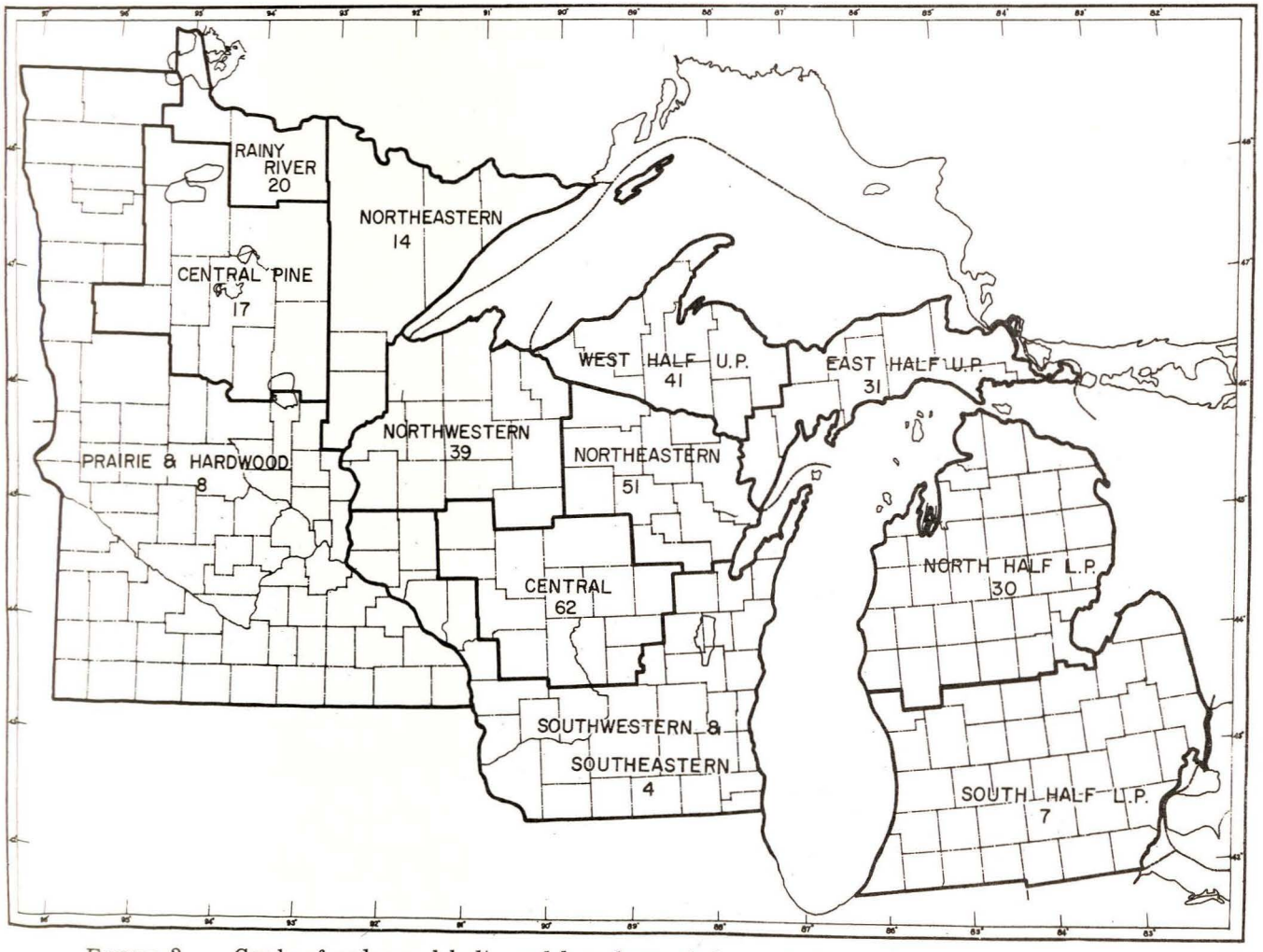


FIGURE 3. — Cords of pulpwood bolts and logs harvested per 1,000 cords of merchantable volume in principal pulpwood species, by Forest Survey District, 1967. The heavy lines delineate the boundaries of the Forest Survey Districts in each state.

County loggers produced the largest pulpwood volume. All Upper Michigan counties and 46 in Lower Michigan contributed to the harvest.

Out-of-state customers boost Minnesota's harvest 3 percent. — Wisconsin and Canadian mills acquired enough additional Minnesota wood, compared to 1966, to more than offset reduced demands by Minnesota mills. Cutting of tamarack, normally a little-used species, jumped 33,000 cords in a year, and nearly all of it went to Wisconsin. For the first time since 1961, less than three-fourths of the harvest went to resident mills. Pulpwood cutting rose modestly in all districts of Minnesota. The Northeastern and Central Pine Units provided three-fourths of the total cut. St. Louis, Koochiching and Itasca Counties again led production with 315,000, 205,000, and 128,000 cords, respectively.

CENTRAL STATES

Central States pulpwood production was 253,000 cords in 1967, a decline of 8 percent (see Appendix table 10). Only 7,500 cords, cut primarily in Indiana, were shipped to mills outside the Central States.

Fourteen Central States pulpmills processed 288,000 cords of pulpwood in 1967, a drop of 4 percent from 1966. Major reasons for the drop in pulpwood consumption, as in the Lake States, were a leveling off in national paper and board inventories and a declining per capita consumption of these commodities in 1967.

Roundwood Harvest Lowest Since 1959

Central States forests yielded 186,000 cords of pulpwood in 1967, 52,000 less than in 1966. Illinois and Indiana accounted for the decline, as shown in the 5-year summary below:

In thousand cords

State	*1963*	*1964*	*1965*	*1966*	*1967*
Illinois	102	105	77	97	69
Indiana	79	85	82	94	69
Iowa	20	33	25	27	27
Missouri	21	23	20	19	21
Total	222	246	204	237	186

During the last 5 years, pulpwood cutting has remained more constant in Iowa and Missouri than in Illinois and Indiana. Less than 2 percent of the harvest was shipped to mills outside the region.

All species groups contributed to the decline; soft hardwood cutting was off 27,000 cords, hard hardwoods 17,000 cords, and softwoods 8,000 cords.[2] Nearly all of the softwood cut came from Illinois. Each Central State cut 10,000 cords or more of soft hardwoods, with Illinois producing the largest volume. Indiana was the leading producer of hard hardwoods.

[2] *Soft hardwoods include species such as elm, basswood, soft maple, yellow-poplar, and cottonwood. Hard hardwoods include oak, hard maple, beech, and hickory.*

No counties cut over 11,000 cords of pulpwood in 1967 (fig. 4). Counties producing over 4,000 cords included Sullivan, Gibson, Ripley, and Jennings in Indiana; Wabash, Massac, Lawrence, and Pulaski in Illinois; and Dubuque and Lee in Iowa. Of 112 pulpwood-producing counties, 43 were in Illinois, 38 in Indiana, 16 in Missouri, and 15 in Iowa.

Consumption Shifting from Roundwood to Residues

Eighty-seven thousand cords of slabs, edgings, veneer cores, sawdust, and wood flour were used for pulping at Central States pulpmills in 1967. Fifty thousand cords of residue were used in Illinois — double the volume used in 1966. Residue consumed in other Central States increased 12,000 cords from 1966. Chips constituted 89 percent of the total residue used compared to only 70 percent a year earlier.

Roundwood receipts fell 46,000 cords from 1966, to the lowest level in the last 5 years (table 4). The net result was a decline in consumption of 13,000 cords in 1967.

The trend for several years has been toward increasing use of residue as a replacement for roundwood. In 1962, regional mills used only 20,000 cords of residue, 7 percent of their total wood consumption. Since then,

Table 4. — Trends in consumption of roundwood and residues as pulpwood, Central States, 1963-1967

Type of material and area	1963	1964	1965	1966	1967
Roundwood					
Illinois	91	82	68	84	63
Indiana, Iowa, Missouri	142	163	143	163	138
Total	233	245	211	247	201
Residue					
Illinois	17	25	22	25	50
Indiana, Iowa, Missouri	12	14	24	29	37
Total	29	39	46	54	87
All material	262	284	257	301	288

residue receipts at these mills have increased every year, and in 1967 accounted for 30 percent of their total pulpwood consumption (table 4). The increasing use of wood residues in pulping is expected to continue although the percentage used in relation to roundwood may be approaching an upper limit.

Thirty percent of the residue consumed in the region come from sawmills, cooperage mills, veneer mills and other wood-using plants in Wisconsin, Arkansas, Kentucky, Alabama, Mississippi, Louisiana, and Texas. Illinois supplied over half of the residue used for pulping in the Central States.

Active Pulpmill Capacity 1,500 Tons Per Day

Fourteen active pulpmills in the region have a collective pulping capacity of 1,525 tons per day, of which Illinois mills contribute more than half (table 5). Three-fifths of the capacity is for producing semichemical pulp, and the remainder for groundwood and other mechanical types. Pulping capacity increased by only 40 net tons in 1967, and no large expansions have been announced recently.

Large Kentucky Pulpmill May Need Central States Wood

A large Kentucky pulpmill is expected to begin operating in 1970, eventually using an estimated 1,000 cords of pine and hardwood per day. The mill, located adjacent to Missouri and Illinois, may provide an additional pulpwood outlet for loggers in these states. Most nearby Missouri counties are not supplying any roundwood pulpwood now.

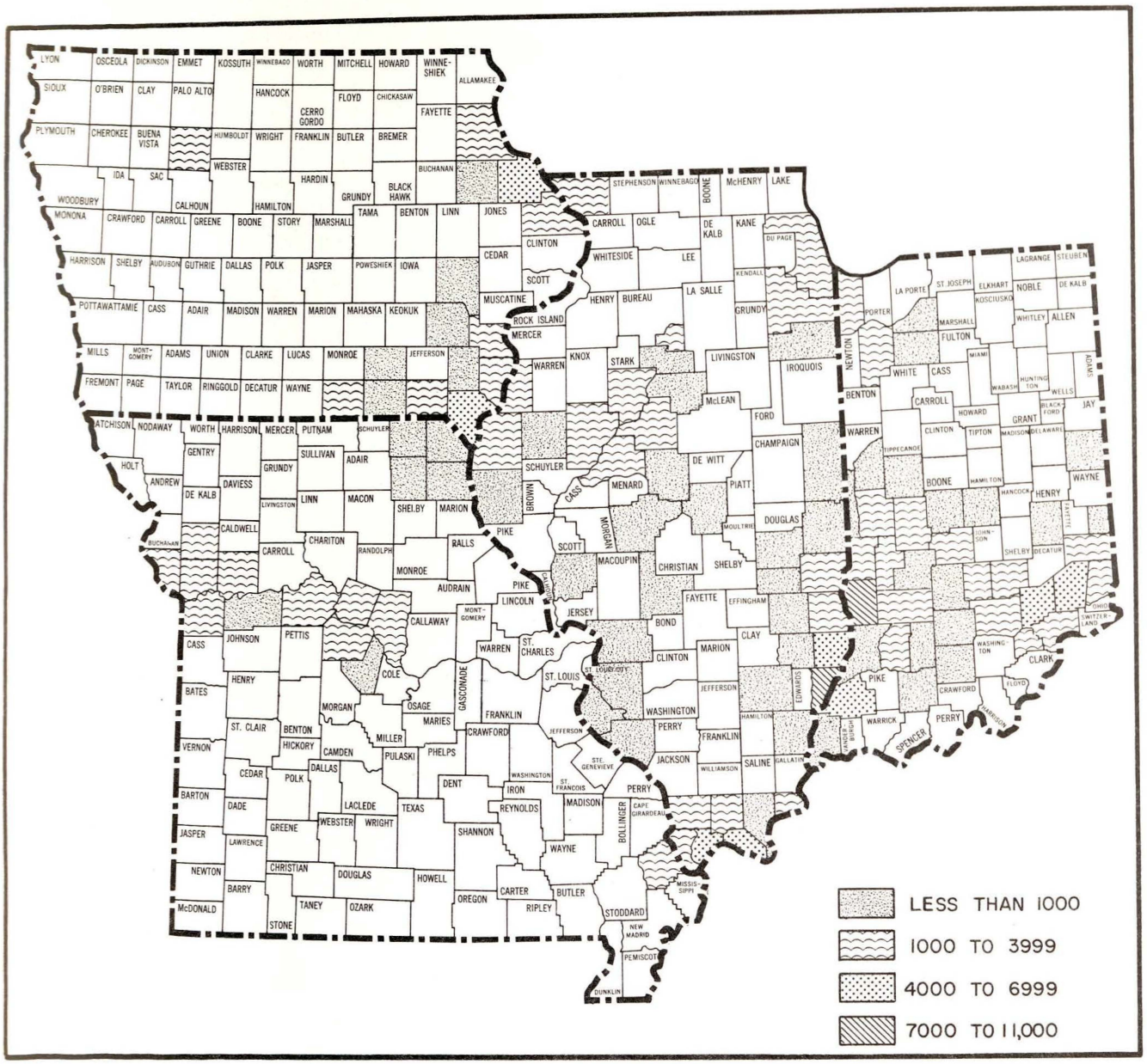


FIGURE 4. — Harvest of pulpwood bolts by counties, 1967

Table 5. — Active woodpulp mills in the Central States by location, type of pulp produced, and capacity, 1967

Company	Location	Mill capacity in tons per 24 hours[1/]				
		Total	Sulfite	Sulfate	Groundwood and other mechanical	Semi-chemical
Illinois:						
Celotex Corp.	Peoria	190	--	--	190	--
Alton Box Board Co.	Alton	300	--	--	--	300
Bird & Son, Inc.	Chicago	40	--	--	40	--
Certain-Teed Products Corp.	East St. Louis	100	--	--	100	--
Flintkote Co., The	Mt. Carmel	40	--	--	40	--
Johns-Manville Products Corp.	Waukegan	65	--	--	65	--
General Aniline & Film Corp.	Joliet	95	--	--	95	--
Total	7 plants	830	--	--	530	300
Indiana:						
Container Corp. of America	Carthage	120	--	--	--	120
Weston Paper & Manufacturing Co.	Terre Haute	250	--	--	--	250
Total	2 plants	370	--	--	--	370
Iowa:						
Celotex Corp.	Dubuque	90	--	--	--	90
Consolidated Packaging Corp.	Fort Madison	135	--	--	--	135
United States Gypsum Co.	Fort Dodge	2/	--	--	--	--
Total	3 plants	225	--	--	--	225
Missouri:						
Huebert Fiberboard, Inc.	Booneville	60	--	--	60	--
General Aniline & Film Corp.	Kansas City	40	--	--	40	--
Total	2 plants	100	--	--	100	--
All States	14 plants	1,525	--	--	630	895

1/ Lockwoods Directory of the Paper and Allied Industries-1968, and 1968 Directory of the Forest Products Industry.
2/ Capacity not available.

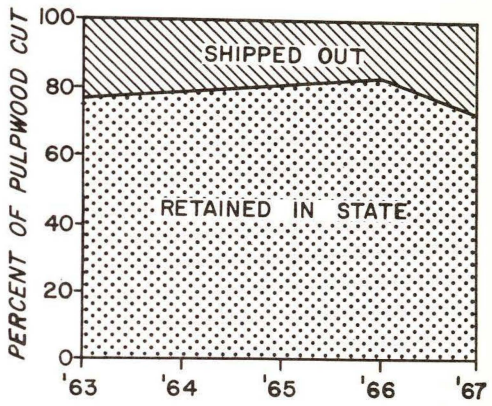
APPENDIX

Table 6 — Lake States pulpwood production, by State of origin and destination, 1963-1967

MINNESOTA

Year	Total cut	Destination of pulpwood: Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1963	1,063	828	221	-	14
1964	1,062	856	193	-	13
1965	1,018	842	159	-	17
1966	1,174	970	193	*	11
1967	1,205	884	299	*	22
5-year average	1,104	876	213	*	15

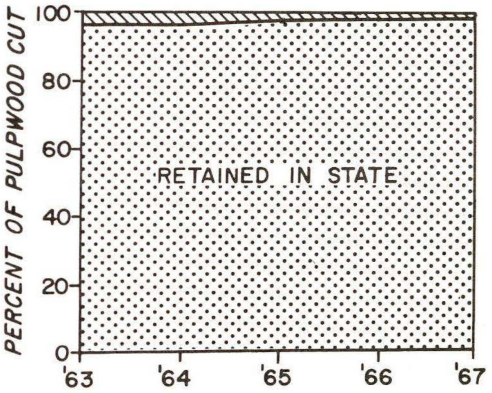
* Less than 500 cords.



WISCONSIN

Year	Total cut	Destination of pulpwood: Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1963	1,302	20	1,262	2	18
1964	1,244	19	1,207	2	16
1965	1,253	8	1,225	1	19
1966	1,536	13	1,501	3	19
1967	1,416	15	1,387	*	14
5-year average	1,350	15	1,316	2	17

* Less than 500 cords.



MICHIGAN

Year	Total cut	Destination of pulpwood: Minn.	Wis.	Mich.	Other
	(Thousand standard cords)				
1963	1,297	-	633	664	-
1964	1,321	-	588	730	3
1965	1,365	-	608	750	7
1966	1,570	1	666	901	2
1967	1,344	-	660	684	*
5-year average	1,379	*	631	746	2

* Less than 500 cords.

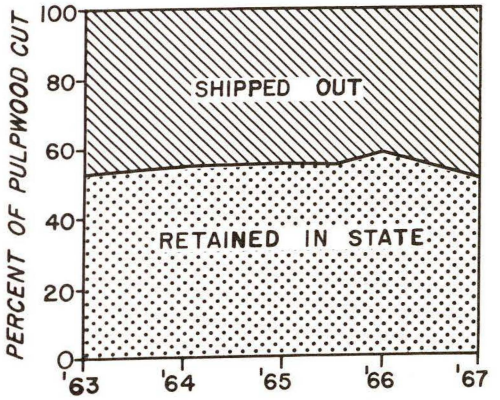


Table 7. — Lake States pulpwood production, by Forest Survey District and destination by State, 1967
(Thousand standard cords, roughwood basis)

MINNESOTA					
District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
Northeastern	459	306	152	*	1
Central Pine	453	341	112	-	-
Rainy River	249	203	25	-	21
Hardwood & Prairie	44	34	10	-	-
Total	1,205	884	299	*	22

WISCONSIN					
District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
Northeastern	673	-	673	*	*
Northwestern	502	1	501	-	-
Central	207	4	200	-	3
Southeastern & Southwestern	34	10	13	-	11
Total	1,416	15	1,387	*	14

MICHIGAN					
District	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
E. ½ Up. Pen.	295	-	241	54	*
W. ½ Up. Pen.	508	-	419	89	-
N. ½ Low. Pen.	507	-	-	507	-
S. ½ Low. Pen.	34	-	-	34	*
Total	1,344	-	660	684	*

* Less than 500 cords.

Table 8. — Lake States pulpwood production by species, State, and Forest Survey District, 1963-1967

(Thousand standard cords, roughwood basis)

State and district	ASPEN Annual production					State and district	BALSAM FIR Annual production				
	1963	1964	1965	1966	1967		1963	1964	1965	1966	1967
MINNESOTA						MINNESOTA					
Northeastern	181	176	177	205	205	Northeastern	31	26	22	20	26
Central Pine	150	172	186	272	265	Central Pine	38	32	23	35	30
Rainy River	94	91	96	123	108	Rainy River	33	31	28	25	20
Prairie & Hardwood	8	12	9	12	13	Prairie & Hardwood	*	*	*	-	-
Total	433	451	468	612	591	Total	102	89	73	80	76
WISCONSIN						WISCONSIN					
Northeastern	321	332	341	449	430	Northeastern	33	27	25	28	26
Northwestern	219	208	220	298	273	Northwestern	27	29	24	26	21
Central	71	61	45	61	35	Central	1	1	1	1	*
Southeastern & Southwestern	2	2	2	2	1	Southeastern & Southwestern	*	*	-	-	*
Total	613	603	608	810	739	Total	61	57	50	55	47
MICHIGAN						MICHIGAN					
E. ½ Up. Pen.	122	112	142	156	144	E. ½ Up. Pen.	63	47	41	48	50
W. ½ Up. Pen.	203	206	207	222	237	W. ½ Up. Pen.	50	33	30	37	38
N. ½ Low. Pen.	314	332	341	388	258	N. ½ Low. Pen.	8	4	2	3	3
S. ½ Low. Pen.	23	25	14	10	7	S. ½ Low. Pen.	-	-	-	-	-
Total	662	675	704	776	646	Total	121	84	73	88	91
LAKE STATES	1,708	1,729	1,780	2,198	1,976	LAKE STATES	284	230	196	223	214

* Less than 500 cords.

(Continued on next page)

(Table 8 continued)

(Thousand standard cords, roughwood basis)

State and district	JACK PINE[1/] Annual production					State and district	SPRUCE Annual production				
	1963	1964	1965	1966	1967		1963	1964	1965	1966	1967
MINNESOTA						MINNESOTA					
Northeastern	136	129	101	138	108	Northeastern	125	118	106	78	93
Central Pine	50	49	56	85	69	Central Pine	39	50	38	31	45
Rainy River	14	17	12	15	11	Rainy River	90	88	92	61	79
Prairie & Hardwood	8	9	12	18	14	Prairie & Hardwood	1	1	2	2	1
Total	208	204	181	256	202	Total	255	257	238	172	218
WISCONSIN						WISCONSIN					
Northeastern	45	48	57	58	45	Northeastern	14	13	10	14	10
Northwestern	53	51	76	92	61	Northwestern	5	6	5	4	3
Central	69	68	72	64	67	Central	*	*	*	*	*
Southeastern & Southwestern	3	1	1	1	1	Southeastern & Southwestern	*	*	-	-	-
Total	170	168	206	215	174	Total	19	19	15	18	13
MICHIGAN						MICHIGAN					
E. ½ Up. Pen.	54	51	66	63	40	E. ½ Up. Pen.	37	33	28	31	33
W. ½ Up. Pen.	36	40	47	47	36	W. ½ Up. Pen.	46	35	36	42	40
N. ½ Low. Pen.	84	106	110	138	115	N. ½ Low. Pen.	5	3	1	1	2
S. ½ Low. Pen.	*	1	1	2	2	S. ½ Low. Pen.	-	-	-	-	-
Total	174	198	224	250	193	Total	88	71	65	74	75
LAKE STATES	552	570	611	721	569	LAKE STATES	362	347	318	264	306

* Less than 500 cords.

1/ Includes small quantity of red and white pine.

(Continued on next page)

(Table 8 continued)

(Thousand standard cords, roughwood basis)

State and district	BIRCH[1/] Annual production					State and district	HEMLOCK Annual production				
	1963	1964	1965	1966	1967		1963	1964	1965	1966	1967
MINNESOTA						MINNESOTA					
Northeastern	*	-	-	-	1	Northeastern	-	-	-	-	-
Central Pine	*	*	*	1	2	Central Pine	-	-	-	-	-
Rainy River	*	-	-	-	-	Rainy River	-	-	-	-	-
Prairie & Hardwood	*	-	-	-	-	Prairie & Hardwood	-	-	-	-	-
Total	*	*	*	1	3	Total	-	-	-	-	-
WISCONSIN						WISCONSIN					
Northeastern	8	8	5	9	28	Northeastern	25	27	37	48	27
Northwestern	36	28	17	26	46	Northwestern	24	22	21	18	13
Central	6	5	2	4	10	Central	3	3	2	3	2
Southeastern & Southwestern	*	*	*	-	*	Southeastern & Southwestern	*	-	-	-	-
Total	50	41	24	39	84	Total	52	52	60	69	42
MICHIGAN						MICHIGAN					
E. ½ Up. Pen.	11	14	5	3	3	E. ½ Up. Pen.	6	10	9	21	16
W. ½ Up. Pen	4	6	1	2	2	W. ½ Up. Pen.	56	49	55	78	44
N. ½ Low. Pen.	8	18	26	8	6	N. ½ Low. Pen.	-	-	-	-	-
S. ½ Low. Pen.	-	-	-	-	-	S. ½ Low. Pen.	*	-	-	-	-
Total	23	38	32	13	11	Total	62	59	64	99	60
LAKE STATES	73	79	56	53	55	LAKE STATES	114	111	124	168	102

* Less than 500 cords.

1/ Includes 43,000 cords of Wisconsin birch reported as miscellaneous hardwoods in Research Note NC-59.

(Continued on next page)

(Table 8 continued)

(Thousand standard cords, roughwood basis)

State and district	TAMARACK Annual production					State and district	MISC. HARDWOODS[1] Annual production				
	1963	1964	1965	1966	1967		1963	1964	1965	1966	1967
MINNESOTA						MINNESOTA					
Northeastern	9	7	5	1	6	Northeastern	4	3	4	4	9
Central Pine	4	5	6	6	27	Central Pine	35	29	24	13	6
Rainy River	-	-	-	*	4	Rainy River	9	9	10	13	23
Prairie & Hardwood	*	*	1	*	3	Prairie & Hardwood	3	3	3	1	1
Total	13	12	12	7	40	Total	51	44	41	31	39
WISCONSIN						WISCONSIN					
Northeastern	1	1	1	1	2	Northeastern	50	44	56	80	64
Northwestern	5	3	3	2	1	Northwestern	100	93	56	70	62
Central	*	*	-	*	-	Central	74	75	77	84	71
Southeastern & Southwestern	*	-	*	-	-	Southeastern & Southwestern	9	12	9	8	6
Total	6	4	4	3	3	Total	233	224	198	242	203
MICHIGAN						MICHIGAN					
E. ½ Up. Pen.	1	2	2	1	1	E. ½ Up. Pen.	2	7	8	16	6
W. ½ Up. Pen.	2	1	1	*	*	W. ½ Up. Pen.	54	60	63	70	79
N. ½ Low. Pen.	-	-	*	-	-	N. ½ Low. Pen.	70	76	75	103	112
S. ½ Low. Pen.	-	-	-	-	-	S. ½ Low. Pen.	5	3	3	5	2
Total	3	3	3	1	1	Total	131	146	149	194	199
LAKE STATES	22	19	19	11	44	LAKE STATES	415	414	388	467	484

1/ Excludes 43,000 cords of Wisconsin birch reported as miscellaneous hardwoods in Research Note NC-59.

* Less than 500 cords.

(Continued on next page)

(Table 8 continued)

(Thousand standard cords, roughwood basis)

State and district	RESIDUE & CHIPS[1/] Annual production					State and district	ALL SPECIES[2/] Annual production				
	1963	1964	1965	1966	1967		1963	1964	1965	1966	1967
MINNESOTA						MINNESOTA					
Northeastern	-	-	1	3	11	Northeastern	486	459	416	449	459
Central Pine	-	2	2	6	9	Central Pine	316	339	335	449	453
Rainy River	-	-	-	-	4	Rainy River	240	236	238	237	249
Prairie & Hardwood	1	3	2	6	12	Prairie & Hardwood	21	28	29	39	44
Total	1	5	5	15	36	Total	1,063	1,062	1,018	1,174	1,205
WISCONSIN						WISCONSIN					
Northeastern	55	43	51	49	41	Northeastern	552	543	583	736	673
Northwestern	19	15	8	7	22	Northwestern	488	455	430	543	502
Central	19	12	6	5	22	Central	243	225	205	222	207
Southeastern & Southwestern	5	6	23	24	26	Southeastern & Southwestern	19	21	35	35	34
Total	98	76	88	85	111	Total	1,302	1,244	1,253	1,536	1,416
MICHIGAN						MICHIGAN					
E. ½ Up. Pen.	8	6	5	11	2	E. ½ Up. Pen.	304	282	306	350	295
W. ½ Up. Pen.	25	38	26	23	32	W. ½ Up. Pen.	476	468	466	521	508
N. ½ Low. Pen.	-	-	-	3	11	N. ½ Low. Pen.	489	539	555	644	507
S. ½ Low. Pen.	-	3	20	38	23	S. ½ Low. Pen.	28	32	38	55	34
Total	33	47	51	75	68	Total	1,297	1,321	1,365	1,570	1,344
LAKE STATES	132	128	144	175	215	LAKE STATES	3,662	3,627	3,636	4,280	3,965

1/ Not reported by district. Prorated on basis of most recent lumber output figures and location at shipping points.

2/ Including residues and chips.

* Less than 500 cords.

Table 9. — Lake States pulpwood production by county and species, 1967

(Thousand standard cords, roughwood basis)

District & county[1]	All species	Aspen	Balsam	Birch[2]	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[3]
WISCONSIN										
NORTHEASTERN:										
Florence	36	31	1	*	2	1	1	-	*	
Forest	101	71	7	4	8	1	1	*	9	
Langlade	60	39	1	4	1	*	*	*	15	
Lincoln	64	43	2	3	2	1	1	*	12	
Marinette	90	64	4	3	2	10	2	1	4	
Menominee	31	22	*	-	8	1	*	-	*	
Oconto	36	30	1	1	*	2	1	-	1	
Oneida	151	98	6	8	1	18	3	1	16	
Shawano	7	5	*	*	1	*	*	-	1	
Vilas	56	27	4	5	2	11	1	*	6	
Total	673	430	26	23	27	45	10	2	64	41
NORTHWESTERN:										
Ashland	46	27	7	3	2	2	1	*	4	
Barron	*	*	-	*	-	-	-	-	*	
Bayfield	68	45	2	8	1	10	*	*	2	
Burnett	22	5	-	1	-	14	*	*	2	
Douglas	88	65	*	2	-	17	1	*	3	
Iron	26	15	3	2	1	*	1	-	4	
Polk	1	1	-	-	-	*	-	-	-	
Price	86	45	5	13	3	2	*	1	17	
Rusk	23	11	*	3	*	-	*	*	9	
Sawyer	49	24	2	9	3	3	*	*	8	
Taylor	44	22	2	5	3	-	*	*	12	
Washburn	27	13	*	*	*	13	*	*	1	
Total	502	273	21	46	13	61	3	1	62	22
CENTRAL:										
Adams	32	1	-	*	-	14	-	-	17	
Chippewa	10	9	*	-	*	1	-	-	*	
Clark	25	7	*	3	*	3	-	-	12	
Eau Claire	3	2	-	-	-	1	-	-	-	
Jackson	22	1	-	-	-	19	-	-	2	
Juneau	19	2	-	-	-	11	-	-	6	
Marathon	23	6	*	5	1	1	*	-	10	
Marquette	5	-	-	-	-	1	-	-	4	
Monroe	4	*	-	-	-	3	-	-	1	
Portage	15	2	*	1	1	5	*	-	6	
Waupaca	3	2	*	*	-	*	*	-	1	
Waushara	7	*	-	-	-	3	*	-	4	
Wood	17	3	-	1	*	5	*	-	8	
Total	207	35	*	10	2	67	*	-	71	22

(Continued on next page)

(Table 9 continued)

WISCONSIN (continued)

(Thousand standard cords, roughwood basis)

District & county[1]	All species	Aspen	Balsam	Birch[2]	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[3]
SOUTHWESTERN:										
Dunn	*	*	-	-	-	*	-	-	-	
Grant	4	-	-	-	-	-	-	-	4	
La Crosse	*	-	-	-	-	*	-	-	-	
Richland	*	-	-	-	-	*	-	-	-	
Trempealeau	*	*	-	-	-	-	-	-	-	
Total	22	*	-	-	-	*	-	-	4	18
SOUTHEASTERN:										
Brown	1	1	*	*	-	*	-	-	*	
Columbia	2	*	-	*	-	1	-	-	1	
Dodge	*	-	-	-	-	-	-	-	*	
Door	*	-	-	-	-	-	-	-	*	
Green Lake	1	*	-	-	-	-	-	-	1	
Outagamie	*	*	-	-	-	-	-	-	-	
Sheboygan	*	-	-	-	-	*	-	-	-	
Total	12	1	*	*	-	1	-	-	2	8
State total	1,416	739	47	84	42	174	13	3	203	111

1/ Includes only those counties that supplied pulpwood in 1967.

2/ Includes 43,000 cords of birch reported as miscellaneous hardwoods in Research Note NC-59. The miscellaneous hardwood volume was reduced accordingly.

3/ County figures are not available.

* Less than 500 cords.

(Table 9 continued)

MICHIGAN

(Thousand standard cords, roughwood basis)

District & county[1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
E. ½ UP. PEN.										
Alger	12	3	1	*	3	4	1	-	*	
Chippewa	41	17	5	*	3	9	6	1	*	
Delta	73	35	16	1	3	8	7	*	3	
Luce	20	3	2	*	3	9	3	*	*	
Mackinac	13	6	4	*	*	1	2	-	*	
Menominee	100	71	13	1	1	2	10	*	2	
Schoolcraft	34	9	9	1	3	7	4	*	1	
Total	295	144	50	3	16	40	33	1	6	2
W. ½ UP. PEN.										
Baraga	66	30	3	*	9	2	5	-	17	
Dickinson	78	59	6	-	1	5	5	*	2	
Gogebic	41	19	4	*	10	*	1	*	7	
Houghton	65	14	4	1	14	2	6	-	24	
Iron	86	60	6	1	3	1	6	*	9	
Keweenaw	5	-	2	-	-	-	3	*	-	
Marquette	79	26	12	*	2	26	13	-	*	
Ontonagon	56	29	1	*	5	*	1	*	20	
Total	508	237	38	2	44	36	40	*	79	32
N. ½ LOW. PEN.										
Alcona	53	37	*	2	-	4	*	-	10	
Alpena	12	7	*	1	-	*	1	-	3	
Antrim	*	*	-	-	-	-	-	-	-	
Arenac	1	1	-	-	-	-	-	-	-	
Benzie	6	3	-	-	-	-	-	-	3	
Cheboygan	10	5	*	1	-	3	*	-	1	
Clare	29	26	-	-	-	1	-	-	2	
Crawford	23	3	-	-	-	19	-	-	1	
Gladwin	4	2	-	-	-	*	-	-	2	
Grand Traverse	14	8	-	-	-	3	-	-	3	
Iosco	12	6	1	*	-	4	1	-	*	
Isabella	5	5	-	-	-	*	-	-	*	
Kalkaska	11	6	*	-	-	4	*	-	1	
Lake	41	7	-	-	-	13	-	-	21	
Leelanau	1	1	-	-	-	*	-	-	*	
Manistee	47	15	-	-	-	2	-	-	30	
Mason	7	4	-	-	-	*	-	-	3	
Mecosta	14	10	-	-	-	-	-	-	4	
Midland	1	1	-	-	-	-	-	-	*	
Missaukee	15	12	*	-	-	1	-	-	2	
Montmorency	31	19	1	1	-	4	*	-	6	
Newaygo	16	11	-	-	-	2	-	-	3	
Oceana	5	3	-	-	-	1	-	-	1	
Ogemaw	12	5	-	*	-	6	-	-	1	
Osceola	11	9	-	-	-	*	-	-	2	
Oscoda	52	21	*	*	-	27	*	-	4	
Otsego	4	*	*	-	-	4	*	-	*	
Presque Isle	15	9	1	1	-	2	*	-	2	
Roscommon	23	12	*	-	-	7	-	-	4	
Wexford	21	10	-	-	-	8	-	-	3	
Total	507	258	3	6	-	115	2	-	112	11

(Table 9 continued)

MICHIGAN (continued)

(Thousand standard cords, roughwood basis)

District & county[1]	All species	Aspen	Balsam	Birch	Hemlock	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
S. ½ LOW. PEN.										
Allegan	1	*	-	-	-	-	-	-	1	
Barry	*	*	-	-	-	*	-	-	*	
Berrien	*	*	-	-	-	-	-	-	-	
Cass	*	-	-	-	-	*	-	-	-	
Gratiot	*	*	-	-	-	-	-	-	*	
Ionia	*	-	-	-	-	*	-	-	-	
Kalamazoo	*	-	-	-	-	*	-	-	-	
Kent	1	1	-	-	-	*	-	-	*	
Lapeer	*	*	-	-	-	-	-	-	-	
Montcalm	7	6	-	-	-	*	-	-	1	
Muskegon	1	*	-	-	-	1	-	-	-	
Ottawa	1	*	-	-	-	1	-	-	-	
St. Clair	*	*	-	-	-	-	-	-	-	
St. Joseph	*	*	-	-	-	-	-	-	*	
Tuscola	*	*	-	-	-	-	-	-	-	
Van Buren	*	-	-	-	-	-	-	-	*	
Total	34	7	-	-	-	2	-	-	2	23
State total	1,344	646	91	11	60	193	75	1	199	68

1/ Includes only those counties that supplied pulpwood in 1967.

2/ County figures are not available.

* Less than 500 cords.

(Table 9 continued)

MINNESOTA

(Thousand standard cords, roughwood basis)

District & county[1]	All species	Aspen	Balsam	Birch	Pine	Spruce	Tamarack	Misc. hdwds.	Residue & chips[2]
NORTHEASTERN:									
Carlton	24	20	1	1	1	*	1	*	
Cook	45	*	2	-	6	37	-	-	
Lake	54	13	3	-	24	14	-	*	
Pine	10	8	*	-	1	*	*	1	
St. Louis	315	164	20	*	76	42	5	8	
Total	459	205	26	1	108	93	6	9	11
CENTRAL PINE:									
Aitkin	53	39	3	-	1	3	4	3	
Becker	2	1	*	-	1	*	*	-	
Beltrami	83	39	10	1	12	14	7	-	
Cass	56	35	2	1	10	2	6	*	
Clearwater	69	56	1	-	6	2	2	2	
Crow Wing	11	4	1	-	6	*	*	-	
Hubbard	29	15	*	-	11	1	2	-	
Itasca	128	71	13	-	14	23	6	1	
Wadena	13	5	-	-	8	-	-	-	
Total	453	265	30	2	69	45	27	6	9
RAINY RIVER:									
Koochiching	205	104	20	-	7	47	4	23	
Lake of the Woods	40	4	*	-	4	32	-	-	
Total	249	108	20	-	11	79	4	23	4
HARDWOOD:									
Mille Lacs	2	1	-	-	-	*	*	1	
Morrison	5	5	-	-	*	-	-	-	
Scott	*	*	-	-	*	-	-	*	
Todd	1	-	-	-	1	-	-	-	
Total	20	6	-	-	1	*	*	1	12
PRAIRIE:									
Mahnomen	2	2	-	-	*	*	*	-	
Marshall	*	*	-	-	-	-	-	-	
Norman	*	*	-	-	-	-	-	-	
Polk	3	1	-	-	*	1	1	-	
Roseau	19	4	-	-	13	*	2	-	
Total	24	7	-	-	13	1	3	-	-
State total	1,205	591	76	3	202	218	40	39	36

1/ Includes only those counties that supplied pulpwood in 1967.
2/ County figures are not available.
* Less than 500 cords.

Table 10. — Central States pulpwood production and receipts, by State, 1967

(In standard cords unpeeled)[1]

Species group and destination	Production by States[2]					Imports			Total Receipts
	Illinois	Indiana	Iowa	Missouri	Region	Lake states	Other U.S.	Total Imports	
Softwoods									
Illinois	2,846	-	-	-	2,846	-	-	-	2,846
Ind., Iowa, Mo.[3]	-	-	-	-	-	-	-	-	-
Exported[4]	-	89	-	-	89	-	-	-	-
Total	2,846	89	-	-	2,935	-	-	-	2,846
Soft hardwoods									
Illinois	33,984	1,089	-	1,089	36,162	-	6,111	6,111	42,273
Ind., Iowa, Mo.	10,222	28,545	11,675	17,946	68,388	813	2,570	3,383	71,771
Exported[4]	-	166	-	-	166	-	-	-	-
Total	44,206	29,800	11,675	19,035	104,716	813	8,681	9,494	114,044
Hard hardwoods									
Illinois	10,921	3,918	-	1,400	16,239	-	1,554	1,554	17,793
Ind., Iowa, Mo.	10,921	32,887	15,365	762	59,935	3,480	2,627	6,107	66,042
Exported[4]	-	2,080	-	-	2,080	-	-	-	-
Total	21,842	38,885	15,365	2,162	78,254	3,480	4,181	7,661	83,835
Total roundwood									
Illinois	47,751	5,007	-	2,489	55,247	-	7,665	7,665	62,912
Ind., Iowa, Mo.	21,143	61,432	27,040	18,708	128,323	4,293	5,197	9,490	137,813
Exported[4]	-	2,335	-	-	2,335	-	-	-	-
Total	68,894	68,774	27,040	21,197	185,905	4,293	12,862	17,155	200,725
Residues, softwood									
Illinois	6,510	-	-	-	6,510	4,172	-	4,172	10,682
Ind., Iowa, Mo.	-	-	-	-	-	-	-	-	-
Exported[4]	-	-	-	-	-	-	-	-	-
Total	6,510	-	-	-	6,510	4,172	-	4,172	10,682
Residue, hardwoods									
Illinois	10,726	-	-	15,734	26,460	1,295	12,011	13,306	39,766
Ind., Iowa, Mo.	9,622	10,999	8,021	177	28,819	4,117	4,307	8,424	37,243
Exported[4]	187	4,700	282	-	5,169	-	-	-	-
Total	20,535	15,699	8,303	15,911	60,448	5,412	16,318	21,730	77,009
All wood material									
Illinois	64,987	5,007	-	18,223	88,217	5,467	19,676	25,143	113,360
Ind., Iowa, Mo.	30,765	72,431	35,061	18,885	157,142	8,410	9,504	17,914	175,056
Exported[4]	187	7,035	282	-	7,504	-	-	-	-
Total	95,939	84,473	35,343	37,108	252,863	13,877	29,180	43,057	288,416

1/ Factors used in converting to standard green cords (128 cu.ft.) were: 4,500 pounds of soft hardwood roundwood; 5,000 pounds of hard-hardwood or coniferous roundwood; 4,100 pounds of softwood chips (green); 4,400 pounds of hardwood chips (green); 2,500 pounds of chips (all species, dry).

2/ Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

3/ Combined to prevent disclosure of individual mill receipts.

4/ Pulpwood shipped to mills outside the region.

Blyth, James E.

1969. Pulpwood production and consumption in the North Central Region, by county, 1967. N. Cent. Forest Exp. Sta., St. Paul, Minn. 23 p., illus. (U.S.D.A. Forest Serv. Resource Bull. NC-6)

This report presents 1967 pulpwood production and receipt data for the Lake States and Central States. Pulpwood production for the Lake States is given by species for each county, and 1967 production by Forest Survey District is compared to that of previous years. For the Central States, 1967 pulpwood production and receipt data are presented by state, and four production classes are shown by county.

OXFORD: 861.0(77): 721.1: 792

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Reports on Pulpwood Production Published by the North Central Forest Experiment Station

Reports of pulpwood production in the Lake States have been published by the Station since 1946. One group of short notes gives annual data by State and species. Another group of longer reports begun in 1959 gives more detailed information by County; in 1965, we began including data for four Central States in this report. The longer reports are:

Pulpwood Production in Lake States Counties, by Arthur G. Horn.

1959 data: Station Paper 85, 13 p.

1960 data: Station Paper 94, 28 p.

1961 data: Station Paper 106, 18 p.

1962 data: Research Paper LS-5, 16 p.

1963 data: Resource Bulletin LS-1, 17 p.

1964 data: Resource Bulletin LS-2, 19 p.

Pulpwood Production and Consumption in the North Central Region by County, by James E. Blyth.

1965 data: Resource Bulletin NC-2, 24 p.

1966 data: Resource Bulletin NC-3, 27 p.

The serial numbers of the brief Notes for the past 10 years are:

1958: Tech. Note 558

1959: Tech. Note 588

1960: Tech. Note 606

1961: Tech. Note 624

1962: Research Note LS-23

1963: Research Note LS-48

1964: Research Note LS-65

1965: Research Note NC-3

1966: Research Note NC-31

1967: Research Note NC-59

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As our Nation grows, people expect and need more from their forests — more wood; more water, fish, and wildlife; more recreation and natural beauty; more special forest products and forage. The Forest Service of the U.S. Department of Agriculture helps to fulfill these expectations and needs through three major activities:

- Conducting forest and range research at over 75 locations ranging from Puerto Rico to Alaska to Hawaii.
- Participating with all State forestry agencies in cooperative programs to protect, improve, and wisely use our Country's 395 million acres of State, local, and private forest lands.
- Managing and protecting the 187-million acre National Forest System.

The Forest Service does this by encouraging use of the new knowledge that research scientists develop; by setting an example in managing, under sustained yield, the National Forests and Grasslands for multiple use purposes; and by cooperating with all States and with private citizens in their efforts to achieve better management, protection, and use of forest resources.

Traditionally, Forest Service people have been active members of the communities and towns in which they live and work. They strive to secure for all, continuous benefits from the Country's forest resources.

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